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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/765,291	01/22/2001	Joe W. Gray	02307O-175400US	9405

20350 7590 05/05/2011
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EXAMINER	
BRUSCA, JOHN S	
ART UNIT	PAPER NUMBER
1631	

NOTIFICATION DATE	DELIVERY MODE
05/05/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	09/765,291	GRAY ET AL.	
	Examiner	Art Unit	
	JOHN BRUSCA	1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 March 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *127,128,130-134,136-142 and 146-155* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *127,128,130-134,136-142 and 146-155* is/are rejected.

7)☒ Claim(s) *137* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of the Claims

1. Claims 127, 128, 130-134, 136-142, and 146-155 are pending.

Claims 127, 128, 130-134, 136-142, and 146-155 are rejected.

Claim 137 is objected to.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 03 March 2011 has been entered.

Drawings

3. Color photographs and color drawings are not accepted unless a petition filed under 37 CFR 1.84(a)(2) is granted. Any such petition must be accompanied by the appropriate fee set forth in 37 CFR 1.17(h), three sets of color drawings or color photographs, as appropriate, and, unless already present, an amendment to include the following language as the first paragraph of the brief description of the drawings section of the specification:

> The patent or application file contains at least one drawing executed in color. Copies of this patent or patent application publication with color drawing(s) will be provided by the Office upon request and payment of the necessary fee.

Color photographs will be accepted if the conditions for accepting color drawings and black and white photographs have been satisfied. See 37 CFR 1.84(b)(2).

Color drawings are referred to on pages 27-33 regarding figures 2A, 2B, 3, 5, 10, and 12. The applicants have not filed three sets of color drawings or the required petition, nor does the specification comprise the required statement noted above. The applicants should either delete the references to color in the drawings or amendment application file to conform with the requirements for color drawings.

Claim Objections

4. Claim 137 is objected to because of the following informalities: The applicants have amended the claim to agree with the nomenclature of the claimed translocation limitation as described in the specification on page 14, however the amendment contains a typographical error and should recite "t(9;22)(q34;q 11)." Appropriate correction is required. In the amendment received 03 March 2011, a colon instead of a semicolon separates 9 and 22, which should be corrected in response to this Office action.

Claim Rejections - 35 USC § 103

5. It is noted that although the claimed subject matter is a product comprising two polynucleotide probes, claims 132-134, 136-142, 146, 147, and 149 contain additional limitations that refer to intended hybridization targets of the claimed composition. It is not apparent that the intended use limitations affect the structure of the claimed compositions, and therefore such intended use limitations do not have patentable weight (see MPEP 2111.02 for a discussion of intended use limitations in claim preambles). Although the limitations of intended

use are not in the preamble of the claims, the limitations of targets for use with the probes is equivalent to intended use limitations in preambles. However, to promote compact prosecution and because the claimed targets of the probes are obvious over the prior art, the following rejections under 35 U.S.C. 103(a) include prior art references that show the probe targets in the claimed subject matter.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 127, 128, 130-134, 136, 139-141, 148, and 149 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartram et al. (The EMBO Journal, Vol. 4, pages 683-686

(1985)) in view of Hopman et al. (Histochemistry Vol. 85 pages 1-4 (1986)) in view of Hariharan et al. (The Embo Journal Vol. 6, pages 115-119 (1987)) in view of Shtivelman et al. (Cell, Vol. 47, pages 277-284 (1986), cited in the Information Disclosure Statement filed 26 August 2002) in view of Lawrence et al. (Cell Vol. 52, pages 51-61 (1988)).

The claimed subject matter is a set of two probes with distinguishable labels, one of which hybridizes to an ABL side of a chromosome translocation comprising a fusion of ABL and BCR genes, with the other probe hybridizing to the BCR side of the fusion of ABL and BCR genes. The probes are capable of being detected by cytogenetic analysis. In some embodiments the probes comprise different fluorescent labels, the probes are capable of in situ hybridization, the probes are capable of hybridizing to interphase chromosomal DNA, or the probes are capable of appearing as doublets after hybridization. In some embodiments the probes are capable of hybridizing to translocations of chromosomes 9 and 22, or the cells are capable of hybridizing to a sample of human bone marrow or peripheral blood. In one embodiment the probes are capable of hybridizing to a Philadelphia chromosome.

Bartram et al. shows that patients with chronic myelocytic leukemia generally have a Philadelphia chromosome featuring rearranged ABL and BCR sequences. Bartram et al. shows on page 683, column 2 and in the methods section on pages 685-686 the use of bone marrow and peripheral blood samples from a human patient to analyze for translocations of chromosomes 9 and 22 at the ABL and BCR genes. The patient was determined to have a complex chromosomal translocation between chromosomes 9, 22, and 12 instead of the typical Philadelphia chromosome translocation. In situ hybridization to metaphase chromosomes was performed, as

shown in figure 2 and Table 1. The probes used included ABL and BCR probes that hybridized to the translocated chromosomes. Details of the regions of the BCR and ABL genes used for the probes are shown on page 686. The probes were isotopically labeled with tritium and hybridized in separate assays.

Bartram et al. does not show double label fluorescence in situ hybridization, hybridization to interphase chromosomal DNA, two probes that appear as doublets, or hybridization to a Philadelphia chromosome.

Hopman et al. shows in the abstract and throughout double label fluorescence in situ hybridization. Metaphase and interphase sequences were hybridized with different probes fluorescently labeled with fluorescein (FITC) or Texas Red (TRITC). Details of the probe labeling procedure is shown on pages 1-2 and Figure 1. Human mouse hybrid cells were used for in situ hybridization. Total human DNA and mouse repetitive sequences were labeled and after in situ hybridization could be distinguished in both metaphase and interphase cells (Figure 2a-f). The staining patterns include adjacent distinct spots of mouse sequences (Figure 2c). Hopman et al. concludes on page 4 that:

> Simultaneous non-radioactive double hybridization can be useful for several research fields. We are currently trying to determine whether our techniques could e used to study the three dimensional topography of two genes in interphase nuclei. In cytogenetics, these techniques may be applied for a high resolution detection of the relative position of two gene sequences in normal and abnormal karyotypes.

Hariharan et al. discusses on page 115 the correlation between chronic myeloid leukemia and the Philadelphia chromosome (a transposition between chromosomes 9 and 22). Hariharan et al. shows maps of the BCR cDNA, maps of the rearranged ABL-BCR fusion cDNA of the

Philadelphia chromosome in figure 1 and the sequence of the BCR cDNA in Figure 2. Hariharan et al. shows probes from the BCR cDNA in the materials and methods section, and the use of those probes in figure 3 to study normal and rearranged BCR mRNA.

Shtivelman et al. discusses the correlation between chronic myeloid leukemia an the Philadelphia chromosome on page 277. Shtivelman et al. shows a map of the ABL cDNA and the sequence of the ABL cDNA in figure 1. Shtivelman et al. uses ABL cDNA probes in figures 4-7.

Lawrence et al. shows a method of in situ hybridization that uses fluorescently labeled probes of single sequences for detection of either metaphase or interphase chromosomal DNA sequences. Epstein Barr virus probes from either single copy regions or repeated regions of the viral genome were prepared and fluorescently labeled after hybridization as shown on page 59. Close integration of two copies of the viral genome was localized to one chromosome in interphase cells by the appearance of two spots (figure 3, discussed on pages 55-56. Metaphase cells were also hybridized with repeated or single copy viral probes (figure 2). Lawrence concludes on page 57 that their method is useful for gene mapping by in situ hybridization, and that fluorescence labeling has the advantage of higher resolution than tritium labeled probes.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the probes for analyzing ABL-BCR chromosomal junctions by in situ hybridization by use of double label fluorescent probes because Hopman et al. shows a method of double label fluorescent in situ hybridization that is useful for studying chromosomal sequences in metaphase and interphase cells, Hariharan et al. shows probes derived from BCR

cDNA can be used to analyze transcripts of normal and rearranged BCR genes, Shtivelman et al. shows probes derived from ABL cDNA can be used to analyze transcripts of ABL genes, and because Lawrence et al. shows that fluorescent probes may be used to detect single copy sequences in metaphase and interphase cells and have advantages for in situ hybridization of higher resolution than the tritium labeled probes used by Bartram et al.

8. Claims 127, 132-134, 136-138, 146, and 147 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartram et al. in view of Hopman et al. in view of Hariharan et al. in view of Shtivelman et al. in view of Lawrence et al. as applied to claims 127, 128, 130-134, 136, 139-141, 148, and 149 above, and further in view of Ribeiro et al.

The claimed subject matter is a set of two probes with distinguishable labels, one of which hybridizes to an ABL side of a chromosome translocation comprising a fusion of ABL and BCR genes, with the other probe hybridizing to the BCR side of the fusion of ABL and BCR genes. In some embodiments the probes hybridize to a Philadelphia chromosome with a t(9;22)(q34;q11) translocation, or the chromosomal translocation correlates with acute lymphocytic leukemia or chronic myelogenous leukemia.

Bartram et al. in view of Hopman et al. in view of Hariharan et al. in view of Shtivelman et al. in view of Lawrence et al. as applied to claims 127, 128, 130-134, 136, 139-141, 148, and 149 above do not show probes that hybridize to a Philadelphia chromosome with a t(9;22)(q34;q11) translocation, or that the chromosomal translocation correlates with acute lymphocytic leukemia (ALL) or chronic myelogenous leukemia (CLL).

Ribeiro et al. shows on page 948 that a Philadelphia chromosome has a t(9;22)(q34;q11) translocation. Ribeiro et al. shows on page 948 that the Philadelphia chromosome is considered to be a marker of CLL. Ribeiro et al. shows in the abstract and Table 1 18 patients that have both the Philadelphia chromosome and ALL.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to make probes for analyzing ABL-BCR junctions as shown in Bartram et al. in view of Hopman et al. in view of Hariharan et al. in view of Shtivelman et al. in view of Lawrence et al. as applied to claims 127, 128, 130-134, 136, 139-141, 148, and 149 above that would detect Philadelphia chromosomes with a t(9;22)(q34;q11) translocation because Ribeiro et al. shows that the Philadelphia chromosome correlates with CLL. It would have been further obvious to make probes for analyzing ABL-BCR junctions in cells from ALL patients because Ribeiro et al. also shows that some ALL patients have the Philadelphia chromosome.

9. Claims 127, 132, and 142 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartram et al. in view of Hopman et al. in view of Hariharan et al. in view of Shtivelman et al. in view of Lawrence et al. as applied to claims 127, 128, 130-134, 136, 139-141, 148, and 149 above, and further in view of Selden et al. (Proceedings of the National Academy of Sciences USA Vol. 80, pages 7289-7292 (1983).

The claimed subject matter is a set of two probes with distinguishable labels, one of which hybridizes to an ABL side of a chromosome translocation comprising a fusion of ABL and BCR genes, with the other probe hybridizing to the BCR side of the fusion of ABL and BCR genes. In some embodiments the probes hybridize to a chromosomal rearrangement of a cell line.

Bartram et al. in view of Hopman et al. in view of Hariharan et al. in view of Shtivelman et al. in view of Lawrence et al. as applied to claims 127, 128, 130-134, 136, 139-141, 148, and 149 above do not show probes that hybridize to a chromosomal rearrangement of a cell line.

Selden et al. shows in the abstract and figure 5 use of in situ hybridization to analyze an altered Philadelphia chromosome in cell line K562. Selden et al. uses an ABL probe as part of their analysis.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to make probes for analyzing ABL-BCR junctions as shown in Bartram et al. in view of Hopman et al. in view of Hariharan et al. in view of Shtivelman et al. in view of Lawrence et al. as applied to claims 127, 128, 130-134, 136, 139-141, 148, and 149 above that would detect Philadelphia chromosomes in a cell line because Selden et al. shows that cell lines may be used for in situ hybridization to study chromosomal rearrangements in Philadelphia chromosomes.

10. Claims 127, 128, 148, 151, 152, and 154 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartram et al. in view of Hopman et al. in view of Hariharan et al. in view of Shtivelman et al. in view of Lawrence et al. as applied to claims 127, 128, 130-134, 136, 139-141, 148, and 149 above, and further in view of Lau et al. (Proceedings of the National Academy of Sciences USA Vol. 80, pages 5225-5229 (1983)) as evidenced by Westbrook (U.S. Patent No. 6,576,421).

The claimed subject matter is a set of two probes with distinguishable labels, one of which hybridizes to an ABL side of a chromosome translocation comprising a fusion of ABL

and BCR genes, with the other probe hybridizing to the BCR side of the fusion of ABL and BCR genes. In some embodiments the ABL probe is c-hu-ABL.

Bartram et al. in view of Hopman et al. in view of Hariharan et al. in view of Shtivelman et al. in view of Lawrence et al. as applied to claims 127, 128, 130-134, 136, 139-141, 148, and 149 above do not show an ABL probe that is c-hu-ABL.

Lau et al. shows in the abstract and throughout cosmid vectors useful for the isolation of gene sequences. Lau et al. shows a library of human leukocyte genomic DNA on page 5226. Lau et al. shows on page 5229 that their cosmids have the advantage of serving as vectors for genomic library preparation and also as expression vectors for transfer into mammalian cells, and allowing for subsequent isolation and packaging of the vectors.

Westbrook defines the vector portion of the c-H-abl probe in column 16 by stating that the cosmid vectors of Lau et al. were used to prepare the c-H-abl probe vector, and that the c-H-abl clone was isolated from the library of Lau et al.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to make a probe comprising any desired portion of the ABL gene sequence that would hybridize to a Philadelphia chromosome by inserting the desired ABL fragment as shown in Shtivelman et al. into a cosmid vector of Lau et al. because such a probe would allow for detection of ABL sequences in Philadelphia chromosomes and because Lau et al. shows that their cosmid vectors are useful for cloning gene sequences, and because Westbrook et al. shows that the c-Hu-abl clone was isolated from the library of Lau et al.

11. Claims 127, 128, 148, 150, 153, and 155 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartram et al. in view of Hopman et al. in view of Hariharan et al. in view of Shtivelman et al. in view of Lawrence et al. as applied to claims 127, 128, 130-134, 136, 139-141, 148, and 149 above, and further in view of Frischauf et al.(Journal of Molecular Biology Vol. 170, pages 827-842 (1983)) in view of Westbrook (U.S. Patent No. 6,576,421).

The claimed subject matter is a set of two probes with distinguishable labels, one of which hybridizes to an ABL side of a chromosome translocation comprising a fusion of ABL and BCR genes, with the other probe hybridizing to the BCR side of the fusion of ABL and BCR genes. In some embodiments the BCR probe is PEM12.

Bartram et al. in view of Hopman et al. in view of Hariharan et al. in view of Shtivelman et al. in view of Lawrence et al. as applied to claims 127, 128, 130-134, 136, 139-141, 148, and 149 above do not show a BCR probe that is PEM12.

Frischauf et al. shows in the abstract and figure 1 the lambda bacteriophage EMBL3. Frischauf et al. show that EMBL3 is useful for cloning genomic sequences by virtue of the polylinker sequences in the EMBL3 vector that allows for direct insertion of a variety of digested genomic DNA (see the abstract and Figure 1).

Westbrook et al. shows in column 16 that the PEM12 probe comprises the breakpoint region of the bcr gene. Westbrook et al. defines the vector portion of the PEM12 probe in column 16 by stating that the EMBL3 vector was used to prepare the PEM12 probe vector.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to make a probe comprising any desired portion of the BCR gene sequence

that would hybridize to a Philadelphia chromosome by inserting the desired BCR fragment as shown in Bartram et al. in view of Hopman et al. in view of Hariharan et al. in view of Shtivelman et al. in view of Lawrence et al. as applied to claims 127, 128, 130-134, 136, 139-141, 148, and 149 above et al. into an EMBL3 vector of Frischauf et al. because such a probe would allow for detection of BCR sequences in Philadelphia chromosomes and because Frischauf et al. shows that their lambda vectors are useful for cloning gene sequences and because Westbrook et al. shows that the PEM12 probe comprises the breakpoint region of the bcr gene in the EMBL3 vector.

12. Applicant's arguments filed 03 March 2011 have been fully considered but they are not persuasive. The applicants state that Bartram et al. does not show detection of two distinguishable labels at the same time, however Hopman et al. was cited to show that double label in situ hybridization was known in the prior art. The applicants state that Hopman et al. does not show a procedure with the sensitivity to detect single copy targets by in situ hybridization with fluorescently labeled probes, however Lawrence et al. shows detection of single copy sequences can be achieved using fluorescently labeled probes. The applicants state that the discussion of condensation state in Lawrence et al. in the second column of page 58 suggests that the sensitivity of their assay is dependent upon the presence of viral sequences with a favorable condensation state. Lawrence et al. does not state on page 58 that the sensitivity of their detection of the target sequence is due to the extent of condensation of chromosomal DNA. The discussion of Lawrence et al. on page 58 concerns the effect of the extent of condensation on the distance between two copies of viral inserts in the chromosome. On page 58, Lawrence et al.

state that chromosomes are thought to differ in condensation by 10^4 to 10^3. Their observed change in distance is about an order of magnitude less. Lawrence et al. propose that this difference is due to looping of the detected sequences in condensed chromosomes, as depicted in figure 6. The ability of Lawrence et al. to detect the same single copy sequences in both uncondensed interphase and condensed metaphase chromosomes shows that their technique is sensitive enough to detect single copy sequences over a wide range of different states of chromosomal condensation.

Double Patenting

13. The provisional rejection of claims 127, 128, 130, 131, and 148 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 23, 24, 38, 72, 74, 118, 122, and 123 of copending Application No. 10/608,092 in the Office action mailed 03 September 2010 is withdrawn in view of the cancellation of the claims in copending Application No. 10/608,092.

14. Applicant is advised that should claim 127 be found allowable, claims 128 and 148 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

15. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible

harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., In re Berg, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

16. Claims 127, 128, 130, 131, and 148 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 3 and 11 of U.S. Patent No. 6,280,929. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claimed subject matter of U.S. Patent No. 6,280,929 is a method of using

the probes of the instant claims further limited to be a species of probe that is at least 40 kb in length and it would be obvious to make the probes required by the method of using the probes.

17. Claim 137 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 3 and 11 of U.S. Patent No. 6,280,929 in view of Bartram et al. in view of Ribiero et al.

The claimed subject matter of claim 137 is a set of two probes for BCR and ABL genes with distinguishable labels that detect translocation breakpoints of a t(9;22)(q34;q11) translocation.

Claims 3 and 11 of U.S. Patent No. 6,280,929 show a method of using two distinguishable fluorescently labeled probes for BCR and ABL genes.

Claims 3 and 11 of U.S. Patent No. 6,280,929 do not show probes that detect a t(9;22)(q34;q11) translocation.

Bartram et al. shows that patients with chronic myelocytic leukemia generally have a Philadelphia chromosome featuring rearranged ABL and BCR sequences.

Ribeiro et al. shows on page 948 that a Philadelphia chromosome has a t(9;22)(q34;q11) translocation. Ribeiro et al. shows on page 948 that the Philadelphia chromosome is considered to be a marker of CLL. Ribeiro et al. shows in the abstract and Table 1 18 patients that have both the Philadelphia chromosome and ALL.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to make probes for analyzing chromosomes with a t(9;22)(q34;q11) translocation because Claims 3 and 11 of U.S. Patent No. 6,280,929 show a method of using two

distinguishable fluorescently labeled probes for BCR and ABL genes and because Bartram et al. shows that patients with leukemia generally have a Philadelphia chromosome featuring rearranged ABL and BCR sequences and because Ribeiro et al. shows that the Philadelphia chromosome has a t(9;22)(q34;q11) translocation that correlates with CLL. It would have been further obvious to make probes for analyzing ABL-BCR junctions in cells from ALL patients because Ribeiro et al. also shows that some ALL patients have the Philadelphia chromosome.

18. Claims 127, 128, 130-134, 136-142, 146-148, and 150-155 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 3, 7, 8, 11-16, 19, 21, 22, 24, and 26-36 of U.S. Patent No. 6,576,421. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claimed subject matter of U.S. Patent No. 6,576,421 is a method of using the probes of the instant claims further limited to using three probes and it would be obvious to make the instant claimed set of two probes required for the method claimed in U.S. Patent No. 6,576,421.

19. Claim 137 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 11 of U.S. Patent No. 6,576,421 in view of Bartram et al. in view of Ribiero et al.

The claimed subject matter of claim 137 is a set of two probes for BCR and ABL genes with distinguishable labels that detect translocation breakpoints of a t(9;22)(q34;q11) translocation.

Claim 11 of U.S. Patent No. 6,576,421 show a method of using three distinguishable labeled probes for BCR and ABL genes.

Claim 11 of U.S. Patent No. 6,576,421 do not show probes that detect a t(9;22)(q34;q11) translocation.

Bartram et al. shows that patients with chronic myelocytic leukemia generally have a Philadelphia chromosome featuring rearranged ABL and BCR sequences.

Ribeiro et al. shows on page 948 that a Philadelphia chromosome has a t(9;22)(q34;q11) translocation. Ribeiro et al. shows on page 948 that the Philadelphia chromosome is considered to be a marker of CLL. Ribeiro et al. shows in the abstract and Table 1 18 patients that have both the Philadelphia chromosome and ALL.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to make probes for analyzing chromosomes with a t(9;22)(q34;q11) translocation because Claim 11 of U.S. Patent No. 6,576,421 show a method of using two distinguishable labeled probes for BCR and ABL genes and because Bartram et al. shows that patients with leukemia generally have a Philadelphia chromosome featuring rearranged ABL and BCR sequences and because Ribeiro et al. shows that the Philadelphia chromosome has a t(9;22)(q34;q11) translocation that correlates with CLL. It would have been further obvious to make probes for analyzing ABL-BCR junctions in cells from ALL patients because Ribeiro et al. also shows that some ALL patients have the Philadelphia chromosome. The claimed subject matter of claim 11 of U.S. Patent No. 6,576,421 is a method of using three probes and it would be obvious to make the instant claimed set of two probes required for the method of claim 11 of U.S. Patent No. 6,576,421.

20. Applicant's arguments filed 03 March 2011 have been fully considered but they are not persuasive. The applicants state that the claims of U.S. Patent Nos. 6,280,929 and 6,576,421 are patentably distinct from the instant claimed subject matter because the issued patents claim a method and the instant claims are to a product. However a method of using a product is not distinct from the product unless the product can be used in a materially different process or the method can practiced with a materially different product (see MPEP 806.05(h)). Neither situation applies to the instant claims relative to the patents because the methods of the patents require use of the instant claimed products and the instant claimed products are limited to be useful for hybridization to their target in cytogenetic analysis, which is the process claimed in the patents. The instant application was not filed in response to a restriction requirement relative to the patents and application cited as references under double patenting and therefore there is no bar for double patenting over the cited references. The applicants state that the claimed process of U.S. Patent No. 6,576,421 requires three probes, however the process requires the two probes claimed in the instant claims plus an additional probe. The claimed process of U.S. Patent No. 6,576,421 uses the two probes of the instant claims and therefore makes it obvious to make the two probes of the instant claims which are necessary to practice the process of U.S. Patent No. 6,576,421. While the process of U.S. Patent No. 6,576,421 is not obvious solely over the instant two probes, the instant claimed two probes are obvious over a process that uses the probes.

Conclusion

21. A shortened statutory period for reply to this action is set to expire THREE MONTHS from the mailing date of this action.

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN BRUSCA whose telephone number is (571)272-0714. The examiner can normally be reached on M-F 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marjorie A. Moran can be reached on 571-272-0720. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John S. Brusca/

Primary Examiner, Art Unit 1631

jsb